



UNITED STATES PATENT AND TRADEMARK OFFICE

Mr
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,247	10/28/2003	Yee Loong Chin	70030429-1	7045
7590	12/19/2005			EXAMINER MONBLEAU, DAVIENNE N
AGILENT TECHNOLOGIES, INC. Legal Department, DL429 Intellectual Property Administration P.O. Box 7599 Loveland, CO 80537-0599			ART UNIT 2878	PAPER NUMBER

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/696,247	CHIN ET AL.
	Examiner	Art Unit
	Davienne Monbleau	2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 October 2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 and 26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-20 and 26 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 28 October 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed on 10/28/05 has been entered. Claims 1-3 have been amended.

Claims 21-25 and 27 have been canceled. Claims 1-20 and 26 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burrowes (U.S. 4,587,513) in view of Uebbing et al. (U.S. 5,317,149) and Gordon-Ingram (U.S. 6,603,115).

Regarding Claim 1, *Burrowes* teaches in Figure 1 a reflective imaging encoder comprising an emitter (16) emitting light, a diffuse reflective coder (15) reflecting light from the emitter (16), an imaging lens (20) forming an inverted imaging of the reflected light from the

coder (15), and a detector (22) receiving the inverted image from the imaging lens (20). *Burrowes* does not teach that the emitter (16) and the detector (22) are mounted on a common substrate. *Uebbing* teaches in Figure 2 that the emitter (8) and the detector (12) are mounted on a common substrate. It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the emitter and detector on a common substrate in *Burrowes*, as taught by *Uebbing*, to provide an integrated system and stabilize alignment. *Burrowes* does not teach that the detector is an imaging detector. *Gordon-Ingram* teaches in Figure 1 an absolute position encoder comprising a CCD detector (5) and further teaches in column 5 lines 34-37 that any array of photodetectors could be used, as well as other bit detectors. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an imaging detector in *Burrowes*, as taught by *Gordon-Ingram*, based on the desired detector characteristics. *Burrowes* does not teach a light baffle. It would have been obvious, however, to one of ordinary skill in the art at the time of the invention to use a light baffle in *Burrowes*, to prevent ambient light from affecting the measurements, thus improving the overall accuracy of the system and minimizing noise.

Regarding Claim 2, *Gordon-Ingram* teaches in column 5, lines 34-37 that the image detector may be a photodiode array (i.e. photodetector array).

Regarding claim 3, *Gordon-Ingram* teaches in column 5, lines 34-37 that the image detector may be a CMOS imaging sensor.

Regarding Claim 4, *Burrowes* teaches in column 4 lines 8-9 that the emitter (16) is a light emitting diode.

Regarding Claim 5, *Burrowes* teaches in Figure 1 that the LED is an unencapsulated LED.

Regarding Claim 6, *Burrowes* teaches that the LED is unencapsulated, but does not teach that the LED may be encapsulated. *Uebbing* teaches in Figure 2 an optical encoder where the LED is encapsulated. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an encapsulated LED in *Burrowes*, as taught by *Uebbing*, to have a smaller and less expensive integrated system.

Regarding Claim 7, both *Burrowes* and *Uebbing* teach that the emitter is an LED, but do not teach that it is packaged LED. It would have been obvious, however, to one of ordinary skill in the art at the time of the invention to use a packaged LED in *Burrowes* to stabilize the characteristics of the light source system (i.e. temperature control).

Regarding Claim 8, *Uebbing* teaches in Figure 2 that the encapsulation (2) forms an optical axis.

Regarding Claim 9, *Uebbing* teaches in Figure 2 that the light emitting diode (8) is mounted on the optical axis.

Regarding Claim 10, *Uebbing* teaches in Figure 4 that the light emitting diode (8) is mounted offset from the optical axis.

Regarding Claim 11, *Burrowes* in view of *Uebbing* does not teach that the LED includes a reflector cup. It would have been obvious, however, to one of ordinary skill in the art at the

time of the invention to use a reflector cup in *Burrowes* to optimize the direction of light onto the encoder and prevent loss.

Regarding Claim 12, see discussion on Claim 8.

Regarding Claim 13, see discussion on Claim 9.

Regarding Claim 14, see discussion on Claim 10.

Regarding Claim 15, *Burrowes* teaches in Figure 1 that said emitter (16) is an LED, but does not teach using a plurality of LEDs. It would have been obvious, however, to one of ordinary skill in the art at the time of the invention to use an particular light source or arrangement thereof in *Burrowes*, to optimize cost, efficiency, signal output, or any other desired characteristic.

Regarding Claim 16, *Burrowes* teaches in Figure 1 that imaging lens (20) is separate from the detector (22).

Regarding Claim 17, *Burrowes* does not teach that the lens is incorporated into an encapsulation for the detector. *Uebbing* teaches in Figure 2 that the imaging lens (6) is incorporated into the encapsulation (2) of the detector (12). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the imaging lens into the encapsulation in *Burrowes*, as taught by *Uebbing*, to stabilize the alignment of the optical elements and provide a compact and integrated system.

Regarding Claim 26, *Burrowes* teaches in Figure 1 that the detector (22) is mounted on the optical axis of the imaging lens (20).

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burrowes in view of Uebbing, as applied to claim 1 above, and in further view of McQueen (U.S. 2002/0195550).

Regarding Claim 18, *Burrowes* in view of *Uebbing* does not teach an aperture between the coder and the imaging lens. *McQueen* teaches in Figure 1 a code reading system comprising an aperture (110) between a coder (114) and an imaging lens (112). It would have been obvious to one of ordinary skill in the art at the time of the invention to use an aperture in *Burrowes*, as taught by *McQueen*, to adjust the depth of field for the device. (See *McQueen* paragraph [0041]).

Regarding Claims 19 and 20, see discussion on Claim 18. Although *McQueen* does not teach these specific aperture arrangements, it would have been obvious to one of ordinary skill in the art the time of the invention to use a particular aperture configuration to have an imaging device with certain focusing characteristics.

Response to Arguments

Applicant's arguments filed 10/28/05 have been fully considered but they are not persuasive. In particular, Applicant argues:

- A. *Burrowes* does not teach a substrate to which the emitter an image detector are mounted.
- B. *Burrowes* and *Uebbing* do not teach using a baffle between the emitter the image detector.

Regarding argument A, the Examiner did not rely on *Burrowes* to teach this limitation, but rather *Uebbing*, and Applicant did not argue that *Burrowes* in view of *Uebbing* does not teach this limitation. Thus, the Examiner maintains the rejection. (See rejection above.)

Regarding argument B, Applicant did not specifically address the Examiner's argument. Nonetheless, the Examiner maintains that it would have been obvious to use a baffle to prevent unwanted/ambient light from entering the detector. Additionally, the Examiner refers to *Cook et al.* (U.S. 5,886,350), which teaches (Figure 4, column 4, lines 53-60) that it is known in the art to use baffles to prevent emitter light from directly impinging on the detector. This supports the Examiner's motivational statement for claim 1, showing that is known in the art to use baffles.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2878

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 571-272-1945. The examiner can normally be reached on Monday through Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Davienne Monbleau

DNM

Georgia Epps
Georgia Epps
Supervisory Patent Examiner
Technology Center 2800